REMARKS

Reconsideration of the application is requested.

Claim Rejections - 35 USC § 103

"Claims 1-21 are rejected under 35 USC 103(a) as being unpatentable over Applicant's Admitted Prior Art (AAPA) in combination with Houston (US Patent No. 6,261,866), Maurelli et al (US Patent No. 5,479,367) and Yamane et al (US Patent No. 6,337,249).

Applicant's admitted prior art (AAPA) discloses in figures 2 and 3 and related text a method of making a semiconductor device comprising the steps of performing a LOCOS operation on an epitaxial layer of a pre-doped N-type semiconductor substrate to define an active region have a predefined boundary (figure 3):

implanting a first dopant into the epitaxial layer within the active region to create a well of first type conductivity (figure 3, 6);

depositing a polysilicon layer over the active region, doping the polysilicon layer to create a poly semiconductor layer of a second type of conductivity, patterning the poly semiconductor layer to create a poly gate (figure 3, 1) over the first region and well;

performing an ion implant of the second type conductivity between the LOCOS regions and the poly gate to create first and second lightly doped regions (figure 3, 5 and 15), the first and second lightly doped regions being separated by a channel region beneath the poly gate;

depositing an oxide layer over the poly gate and active regions, etching the oxide layer to create side spacers (figure 3, 7 and 17) on each side of the poly gate and implanting a heavy dose of the second type of dopant between the LOCOS regions and the side spacers to create source and drain regions (figure 3, 4 and 14), the source and drain regions being separated by the channel region. AAPA further discloses that the first type of dopant is a P type dopant and the second type of dopant is an N type dopant (Specification, p. 8 second paragraph).

AAPA fails to expressly disclose a step of implanting the first dopant into the well to create at least a first region, and also fails to teach the use of masks during the heavy dose, light dose and first region implantation steps.

Maurelli et al disclose in figures 1-3 and related text a method of implanting the first dopant into the well to create at least a first region (figure 5, 4) and discloses using a photoresist (figure 5 and 6, 3 and 5) mask during the creation of the N+ region (figure 6,9) and first region (figure 5). Maurelli further discloses implanting the N type dopant so that th lightly doped region is not in contact with the first region (figure 3). It would have been obvious to combine the teaching of Maurelli with the method of AAPA in order to guarantee a very good performance in terms of writing speed and current absorption (col. 2, lines 8-16)."

Applicant's Response

Applicant herein incorporates his previous arguments and points out that the Maurelli references disclose "an implantation of type p in a channel region". (See Maurelli column 2. lines 51- 53, and figures 5-9) Therefore, the channel region in Maurelli is located **between** the source and drain region. Applicant's invention on the other hand performs the steps of "implanting the first dopant into the well to create a first region and a second region separated from the first region, the first and second regions being implanted across the boundary of the active region and directly spaced apart from each other across the active region and spaced apart from the center of the active region". The key features being that the implant is not limited to the channel region as taught in the Maurelli reference.

To further highlight this distinction, claims 1 and 13 have been amended to include the features previously claimed in claims 4 and 5 (for claim 1) and 16 (for claim 13). Therefore, both claims 1 and 13 should be allowed over the cited combination.

The rejection further stated: "Neither AAPA nor Maurelli disclose implanting the N type dopant so that the lightly doped regions are in contact with the first region. Yamane et al disclose in figures 1-15D and related text a method implanting the N type dopant so that the lightly doped regions (figure 2D, 15b) are in contact with the first region (figure 2D, 17). It would have been obvious to one of ordinary skill in the art ant the time of the invention to

combine the teaching of Yamane with the combined method of AAPA and Maurelli in order to establish a threshold voltage at a desired value (col. 7, lines 20-55)."

Applicant's Response

Applicant herein incorporates his previous arguments and additionally adds that the implant Yamane describes is limited to the channel and is in proximity of a source region. Applicant describes regions that include "a first region and a second region separated from the first region, the first and second regions being implanted across the boundary of the active region and directly spaced apart from each other across the active region and spaced apart from the center of the active region".

Additionally, the step of "patterning the poly semiconductor layer to create a poly gate over the first and second regions and well" is neither taught nor suggested by Yamane or the combination of Yamane et al. with AAPA, and Maurelli.

The rejection further stated: "Finally, none of the cited prior art teaches implanting the first and second region so that the two regions are separated and below the poly gate with an active region between the first and second region. Houston et at disclose in figures 1-3c a method of implanting the first and second regions so that the two regions are separated and below the poly gate with an active region between the first and second region (figures 2b and 2c). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teaching of Houston with the combined method of AAPA, Maurelli and

Yamane in order to provide continued capacitive coupling of the gate of the body for a greater range of the gate voltage (col. 5, lines 30-35)."

Applicant's Response

Applicant's prior remarks are herein incorporated. The combining of the Houston disclosure is not obvious because Houston teaches a continuous connection between the channel regions of two or more transistors. (col. 5, lines 23-26) Applicant's regions are **not** limited to the channel region, (as shown in figure 1, and claimed in independent claims 1 and 13) rather the regions **cross** the channel region. Applicant's channel region is the area between Nldd regions, not just that between the source and drain area as is the case in Houston.

Applicant's Conclusion

Applicant is faced with the difficulty of distinguishing his invention over an amalgamation of bits and pieces of four different references. Even though not all the bits and pieces are present, if they were, to be obvious there must be a suggestion of the combination; a motivation to make such combination; and the combination must not include the disregarding of steps or elements that are required for the reference to operate. The combination suggestion in the rejection, totally disregards many of the limitations, elements, and steps of the cited references.

Applicant's invention as claimed is unique in the respective locations of source and drain, Nldd regions, channels, and first and second regions. This is not obvious to the combination of references cited.

Applicant has amended his claims to incorporate the definition present in claims 4 and 5 into claim 1, and claim 16 into claim 13. Other claims were amended to correct for dependence that resulted from the amended claims 1 and 13.

The claims being in condition for allowance this action is requested.

Respectfully submitted,

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